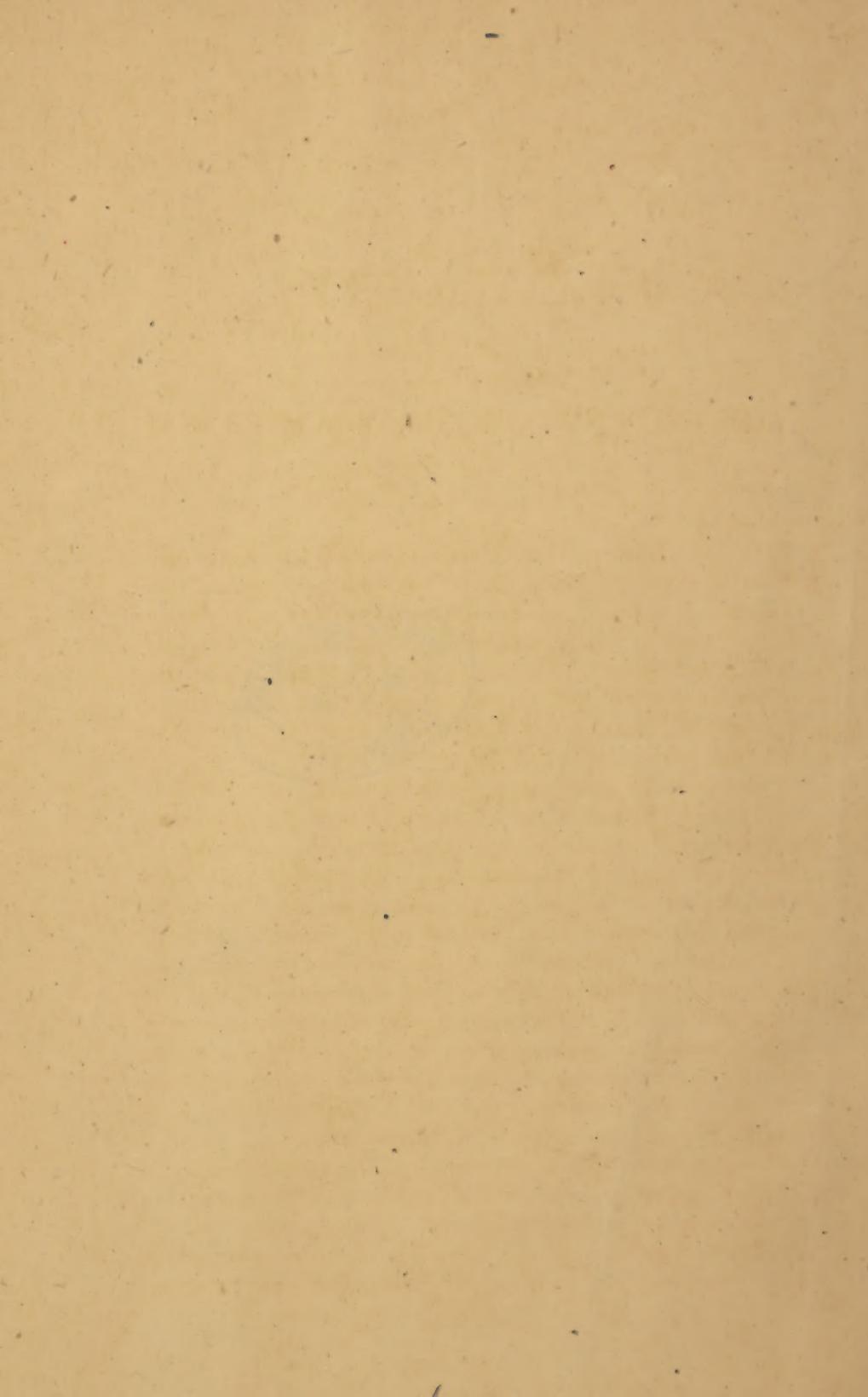


NOYES (I. P.)

Electricity -  
The evidence of the Weather maps.





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## ELECTRICITY.

### THE EVIDENCE OF THE WEATHER MAP.

THE CLAIMS of the weather map in regard to the mysteries of electricity may at first invite a smile on the part of those who have little knowledge of this comparatively recent acquisition to the scientific lore of the world, or on the part of those who, through indifference, have little respect for it. Still, as a student of this wonderful map, I am not particularly anxious to claim for it more than the facts will warrant, but what the plain, simple facts will warrant, that I do claim.

Electricity has ever been a word of mystery. What it is no one has, as yet, made known. It would seem like a primary agent, yet not more so than steam, nor any more mysterious. All forces in nature are mysterious to us. We cannot, in this existence at least, go back of the first or primary cause. Franklin proved the electricity of nature and of the arts to be identical; so I do not think that there is any one but what will admit that, if we can ascertain what the electricity of nature is, we will find out what it is, so far as the human mind is able to comprehend it, in the arts. The evidence of the weather map is, that it is a subtle power of heat; that heat under certain conditions is the primary cause of electricity; and that it bears about the same relation to heat as ozone does to the atmosphere.

That there are certain conditions of the atmosphere under which electricity will be produced is a fact—a fact, too, that the weather map has made more apparent. Indeed, until we had the weather map we knew little of real value as to our own atmosphere; and by it now we are able to understand many things in



this connection that, prior to this information, were disconnected and of no value, and even impossible to know.

We often see in print, and hear intelligent people speak of, "electrical storms," and even some who cannot understand the mysteries of "LOW" ask if that power is not due to electricity. Now, the cause always precedes the effect. The powder forces the ball out of the gun, and the ball does not pull the powder out. Electricity is an effect and not a cause, any more so than the wind. Both electricity and the wind in turn become sub-causes, and produce startling effects; so does steam. Steam is not a first or primary cause. It first has to be created; so with electricity, whether in nature or in the arts. If electricity is the cause of storms, it should be present in all storms, *and in all parts of the same storm*. But we see that it is not. Some may claim, however, that the "electrical storm" does not take place every time. Still there is no difference indicated on the map beyond that, under certain conditions, the north "LOW," as herein referred to, will produce the necessary amount of electricity, and when we have storms replete with electricity the north "LOW" is always present.

Herein I speak of the northern hemisphere. As to the southern hemisphere, we have not as yet had any weather map of that section of the globe. But when we do, I do not apprehend that it will be materially different; only the term "south" will represent the relatively high latitude "LOW," represented by the north "LOW" of the northern hemisphere.

The condition necessary to produce electricity in the atmosphere is heat. At and near the equator there seems to be an abundant supply of heat all the time, and yet even there it must be accelerated by the power we term "LOW," otherwise no electricity is produced. So even at the equator the "LOW" is an all-important factor in the case. The heat is there, in abundant quantity, still, in order to produce the active agent we term "electricity," the normal conditions must be reinforced by the agent we term "LOW." Away from the equator this effect is produced by the relatively north "LOW," which is the agent that causes the transportation of the heated airs from the equator, or from points far to the south, to the more northern point where the electricity is produced. This mysterious power, or force,

which we call electricity, is due to the relatively north "LOW," *i. e.*, relatively to our latitude, for none is produced on our latitude, wherever it may be, when the "LOW" centre is to the south of us, unless there be at the same time another at the north. At the equator the heat may be sufficient, but in the temperate zone, which is our abode, there must be the all-important north "LOW." The wind always blowing from the "HIGH" (the area of high barometer) to the "LOW," if the "LOW" is to the north of a certain part of the country the locality to the south of it will get the warm south winds, provided, of course, that the "coast is clear," *i. e.*, no counteracting "LOW" in the south, as is sometimes the case. One "LOW," on a relatively north line, will not, as a rule, give sufficient heat to produce the effect; there must be two or more in succession. In addition to this we have the "local" condition, which is the result of one or more "LOWS" to the north, which is the central and dominant force. The "locals" that occur here and there, dotted all over the country—here to-day, somewhere else to-morrow, and always somewhere within the grand circle influenced by the north "LOW" to the south of the grand centre—are only parts of one grand whole.

A "LOW" advancing from the south, provided there are no counteracting "HIGHS" or "LOWS," will, in the warmer months of the year, and sometimes in the cooler, produce electricity to the south of it, while to the north of the "LOW" there will be none; and the electricity line will travel north with the "LOW," sometimes to quite a high latitude. So, here is all that is necessary to produce the effect, in the temperate zones at least—a relatively north "LOW," with no "HIGH" near to counteract the effect of the heat. This will produce electricity every time.

Given, a planet composed of land and water, or all water for that matter, but sufficient water to furnish the evaporation; the sun power to furnish the heat, together with favorable conditions of the all-important factor "LOW"—these given, what we term electricity will be produced every time.

The clouds gather at "LOW," and thereby shut off the heat of the sun from the land in the immediate vicinity of this centre; but the heated airs are the while moving steadily along from the districts further to the south, where the sunlight is quite uninterrupted. In addition to this, the heat power of the sun is exercised

along the top of the banks of clouds that are gathered at "LOW," which evidently fully makes up for the heat that may, for a short distance near the centre, be lost.

The winds gather more and more clouds about these centres, and they are all burdened with their due amount of heat, in contact with water, whereby the water is suspended, balloon like, until compression causes it to lose the support of the heated airs, and down it goes to the earth by the power of gravity. The heat that has, up to this time, been held in contact with the water escapes, and forms what we term electricity. In winter, unless there is an exceeding abundance of north "LOW," electricity will not be generated, at least so as to be visible; but in the warmer months of the year this agent will be very conspicuous. Most of our thunderstorms, though, are the result of "locals." The grand head-centre "LOW" may be way up in the St. Lawrence Valley, the little sub-centres all scattered from there to the Gulf. These little "sub-lows" by themselves would be of no value. The main centre, on a high line of latitude, is the real agent that produces the effect. Of course, back of this is the heat power of the sun, but even this must have its necessary agent, "LOW," on which to act, and to reinforce the direct heat; and the time and place must be propitious, else there is no effect. Here are the powers and combinations which produce electricity in nature.

From this it will be seen that there can be no power in electricity to produce storms, nor the factor we term "LOW," which is the centre of the storm. There can be no "electrical storms;" the term is a misnomer. The storms that will have the greatest amount of electricity in combination with them will be those wherein there is the most, relatively, north "LOW." And even at the equator, where there is the maximum of heat, there can be no electricity without the necessary "LOW."

The weather map is the agent that has led us even this near to the great first cause. There is more in this map than the world dreams of, and if we will study it diligently we will find ourselves amply repaid.

ISAAC P. NOYES.

WASHINGTON, D. C.,

*August 13th, 1892.*

[With a few slight additions, this is a reprint from the Washington City *Star* of August 9th, 1892.]



